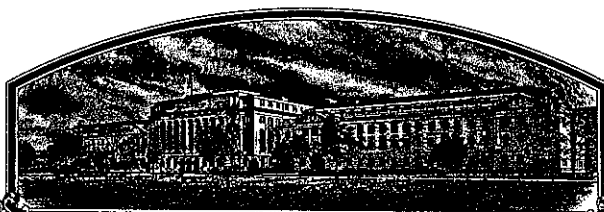


No.

8700105



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9442'



In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D. C.
this 30th day of June in
the year of our Lord one thousand nine
hundred and eighty-eight.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0681-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions on reverse)

1. NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.		2. TEMPORARY DESIGNATION		3. VARIETY NAME 9442	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 700 Capital Square 400 Locust Street Des Moines, IA 50309		5. PHONE (Include area code) 319/234-0335		FOR OFFICIAL USE ONLY VPPO NUMBER 8700105	
6. GENUS AND SPECIES NAME Glycine Max		7. FAMILY NAME (Botanical) Leguminosae		FILING DATE March 31, 1987 TIME 9:30 <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. KIND NAME Soybean		9. DATE OF DETERMINATION September, 1982 January, 1985		FEES RECEIVED AMOUNT FOR FILING \$ 1800 ⁰⁰ DATE March 31, 1987 AMOUNT FOR CERTIFICATE \$ 200 ⁰⁰ DATE May 12, 1988	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				12. DATE OF INCORPORATION 1926	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Iowa					
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Clark W. Jennings 3261 West Airline Hwy Waterloo, IA 50703-9610 Mary Helen Mitchell (Copy) 700 Capital Square - 400 Locust Street Des Moines, IA 50309 PHONE (Include area code):					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement. c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.) d. <input type="checkbox"/> Exhibit D, Additional Description of Variety. e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership.					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified			
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT Clark W. Jennings				DATE March 19, 1987	
SIGNATURE OF APPLICANT				DATE 1	

Attachment: 9442 Soybean (March, 1987)

Exhibit A: Variety **9442** was developed from a cross of 9441 X A3127. It is an F4-derived selection which was advanced to the F4 generation by modified single-seed descent. The F5 progeny was first yield tested in Illinois in the summer of 1982. Overall, **9442** has undergone five years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants.

Seed hila of variety **9442** are light black in color, and under certain environmental conditions may appear imperfect black or gray in color. When seeds of these types are grown, they produce plants having seed with light black hila color.

Five acres of **9442** (breeders seed) were grown in 1985. 100 acres of parent seedstock (foundation seed equivalent) were grown in 1986.

Exhibit B: Variety **9442** is most similar to variety 9441. However, flowers of **9442** are purple whereas flowers of 9441 are white.

Exhibit E: Pioneer Hi-Bred International, Inc. is the sole, original, and first breeder of soybean variety **9442**, for which it solicits a certificate of protection.

Amendment: 9442 Soybean (April, 1988)

Exhibit B (Amendment):

Variety 9442 is most similar to variety 9441. However, flowers of 9442 are purple, whereas flowers of 9441 are white.

Variety 9442 is also similar to varieties RNB410, S42-30, Lawrence, and HT4203. However, 9442 is significantly later maturing than varieties RNB410, S42-30, and Lawrence by 7, 9, and 6 days respectively; it is significantly earlier maturing than variety HT4203 by 10 days (see ABSMAT trait in Tables 1, 2, 3, and 4). (Note: Variety 'HT4203' is incorrectly identified as 'HT2403' in tables.

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Table 1. Individual Observations of Agronomic Traits

OBS	VAR	REP	LDG	HGT	NP	ABSMAT	INODE	LL	LW	HIW
1	HT2403	1	8	56	21	148	2.66667	4.1	2.1	1.3
2	HT2403	2	7	54	24	147	2.25000	3.6	1.9	1.2
3	HT2403	3	8	56	26	147	2.15385	3.8	2.0	1.2
4	HT2403	4	7	56	25	146	2.24000	3.7	2.1	1.2
5	HT2403	5	8	57	27	147	2.11111	4.0	2.1	1.3
6	HT2403	6	8	58	26	148	2.23077	3.8	2.1	1.2
7	HT2403	7	7	57	26	147	2.19231	3.8	2.0	1.2
8	HT2403	8	7	55	25	147	2.20000	4.0	2.2	1.3
9	LAWR	1	8	48	21	132	2.28571	4.2	2.4	1.4
10	LAWR	2	8	49	20	131	2.45000	4.3	2.5	1.4
11	LAWR	3	7	51	22	130	2.31818	4.5	2.5	1.5
12	LAWR	4	8	49	22	132	2.22727	4.4	2.5	1.4
13	LAWR	5	8	50	23	131	2.17391	4.4	2.5	1.5
14	LAWR	6	8	50	23	131	2.17391	4.4	2.5	1.4
15	LAWR	7	8	46	23	131	2.00000	4.3	2.5	1.4
16	LAWR	8	8	48	21	132	2.28571	4.4	2.4	1.4
17	P9442	1	8	46	19	138	2.42105	4.3	2.5	1.5
18	P9442	2	8	45	18	137	2.50000	4.1	2.1	1.4
19	P9442	3	8	44	20	135	2.20000	4.4	2.3	1.4
20	P9442	4	8	45	21	137	2.14286	4.4	2.3	1.4
21	P9442	5	8	45	21	135	2.14286	4.5	2.4	1.4
22	P9442	6	8	44	21	136	2.09524	4.5	2.5	1.5
23	P9442	7	8	44	21	137	2.09524	4.3	2.4	1.5
24	P9442	8	8	44	22	137	2.00000	4.7	2.4	1.6
25	RNB410	1	8	43	17	131	2.52941	4.0	2.0	1.2
26	RNB410	2	8	44	19	130	2.31579	4.2	2.1	1.4
27	RNB410	3	8	45	22	130	2.04545	4.2	2.1	1.3
28	RNB410	4	8	45	22	130	2.04545	4.2	2.0	1.2
29	RNB410	5	7	46	22	130	2.09091	4.3	2.1	1.3
30	RNB410	6	7	45	22	129	2.04545	4.3	2.1	1.3
31	RNB410	7	7	45	21	130	2.14286	4.3	2.0	1.3
32	RNB410	8	8	44	22	130	2.00000	4.2	2.2	1.4
33	S4230	1	8	43	17	129	2.52941	4.2	2.2	1.4
34	S4230	2	8	46	19	129	2.42105	4.0	2.1	1.3
35	S4230	3	8	41	18	128	2.27778	4.3	2.3	1.4
36	S4230	4	8	44	18	128	2.44444	4.2	2.2	1.3
37	S4230	5	8	44	20	127	2.20000	4.0	2.3	1.4
38	S4230	6	8	43	18	128	2.38889	4.3	2.5	1.4
39	S4230	7	8	43	18	129	2.38889	4.2	2.3	1.4
40	S4230	8	8	43	18	129	2.38889	4.3	2.3	1.4

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Table 2. Agronomic Traits Means

AGROMONIC TRAITS MEANS

VARIETY (VAR) - DAYS TO MATURITY (ABSMAT) - NODES/PLANT (NP)

HEIGHT in. (HGT) - LODGING (LDG) - INTERNODE LENGTH in. (INODE)

LEAF MEASUREMENTS in. LENGTH (LL) WIDTH (LW) and
HEIGHT TO THE WIDEST PART OF THE LEAF (HIW)

HT 4203
R/S

VAR	ABSMAT	NP	HGT	LDG	INODE	LL	LW	HIW
HT2403	147 *	25 *	56 *	7.5 *	2.3	3.9 *	2.1 *	1.2 *
LAWR	131 *	22 *	49 *	7.9	2.2	4.4	2.5 *	1.4
P9442	137	20	45	8.0	2.2	4.4	2.4	1.5
RNB410	130 *	21	45	7.6	2.2	4.2 *	2.1 *	1.3 *
S4230	128 *	18 *	43 *	8.0	2.4 *	4.2 *	2.3 *	1.4 *

* Traits that are significantly different from variety '9442' by linear contrasts.

Table 3. Trait Analysis - Class Level Information

TRAIT ANALYSIS

GENERAL LINEAR MODELS PROCEDURE

CLASS LEVEL INFORMATION

CLASS	LEVELS	VALUES
REP	8	1 2 3 4 5 6 7 8
VAR	5	HT2403 LAWR P9442 RNB410 S4230

HT 4203

NUMBER OF OBSERVATIONS IN DATA SET = 40

Table 4. Trait Analysis for Agronomic Trait ABSMAT

TRAIT ANALYSIS
GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: ABSMAT									
SOURCE		DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.	
MODEL		11	1862.75000000	169.34090909	458.12	0.0001	0.994474	0.4515	
ERROR		28	10.35000000	0.36964286		ROOT MSE		ABSMTAT MEAN	
CORRECTED TOTAL		39	1873.10000000			0.60798261		134.65000000	
SOURCE		DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
REP		7	9.90000000	3.83	0.0049	7	9.90000000	3.83	0.0049
VAR		4	1852.85000000	1253.14	0.0001	4	1852.85000000	1253.14	0.0001
CONTRAST		DF	SS	F VALUE	PR > F				
9442 VS H14203	1	451.56250000	1221.62	0.0001					
9442 VS LAWR	1	110.25000000	298.26	0.0001					
9442 VS RNB410	1	169.00000000	457.20	0.0001					
9442 VS S4230	1	264.06250000	714.37	0.0001					

8700105

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.	TEMPORARY DESIGNATION	VARIETY NAME 9442
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 700 Capital Square 400 Locust Street Des Moines, IA 50309		FOR OFFICIAL USE ONLY PVPO NUMBER 8700105

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,).

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) _____

6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1^a)2 = Type B (SP1^b)

9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) _____

11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

12. LEAF COLOR:

☐ 31 = Light Green ('Weber'; 'York')
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

13. FLOWER COLOR:

☐ 2

1 = White

2 = Purple

3 = White with purple throat

14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

☐ 071 = 000
9 = VI2 = 00
10 = VII3 = 0
11 = VIII4 = I
12 = IX5 = II
13 = X

6 = III

7 = IV

8 = V

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)☐ 0Bacterial Blight (*Pseudomonas glycinea*)☐ 0Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)☐ 0

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

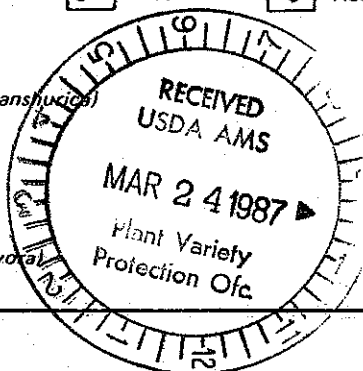
Race 4

☐ 0

Race 5

☐

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microsphaera diffusa*)☐ 0Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ☐ Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
☐ Purple Seed Stain (*Cercospora kikuchii*)
☐ Rhizoctonia Root Rot (*Rhizoctonia solani*)
 Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
☐ Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Race 5 ☐ Race 6 ☐ Race 7
☐ Race 8 ☐ Race 9 ☐ Other (Specify) _____

VIRAL DISEASES:

- ☐ Bud Blight (Tobacco Ringspot Virus)
☐ Yellow Mosaic (Bean Yellow Mosaic Virus)
☐ Cowpea Mosaic (Cowpea Chlorotic Virus)
☐ Pod Mottle (Bean Pod Mottle Virus)
☐ Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
☐ Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Other (Specify) _____
☐ Lance Nematode (*Hoplolaimus Colombus*)
☐ Southern Root Knot Nematode (*Meloidogyne incognita*)
☐ Northern Root Knot Nematode (*Meloidogyne Hapla*)
☐ Peanut Root Knot Nematode (*Meloidogyne arenaria*)
☐ Reniform Nematode (*Rotylenchulus reniformis*)
☐ OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☒ Iron Chlorosis on Calcareous Soil
☐ Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ Mexican Bean Beetle (*Epilachna varivestis*)
☐ Potato Leaf Hopper (*Empoasca fabae*)
☐ Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9441	Seed Coat Luster	3981
Leaf Shape	9441	Seed Size	9441
Leaf Color	9441	Seed Shape	9441
Leaf Size	9441	Seedling Pigmentation	9441

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
9442 Submitted	126	1.7	97	-	-	-	-	13.7	-
9441 Name of Similar Variety	125	1.8	102	-	-	-	-	13.7	-

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

